known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Redox clamping agents

Inventors (please provide full names): Edward J. Yurkow

Fred Mermelstein

Earliest Priority Filing Date: 2/16/99

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search methods of

A method of maintaining cells in a selected redox state comprising contacting cells with a redox clamping agent which maintains the cells in a selected redox state.

and

A method of stabilizing the redox state of cells with abnormal fluctuations in their redox state comprising contacting cells with a redox clamping agent which maintains the cells in a selected redox state.

comprising administering butyrate as the elected species

Please include inventors search - Thanks

STAFF USE ONLY	Type of Search	Vendors and cost where applicable
Searcher:	NA Sequence (#)	STN
Searcher Phone #:	AA Sequence (#)	Dialog
Searcher Location:	Structure (#)	Questel Orbit
Date Searcher Picked Up:	Bibliographic	Dr Links
Date Completed:	Litigation	Lexis Nexis
Searcher Prep & Review Time:	Fulltext	Sequence Systems
Clerical Prep Time:	Patent Family	WWW Internet
Online Time:	Other	Other (specify)

PTO-1590 (1-01)

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=> fil reg; d ide l4; d ide l5
FILE 'REGISTRY' ENTERED AT 17:03:35 ON 03 SEP 2003
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:    1 SEP 2003  HIGHEST RN 577691-42-0
DICTIONARY FILE UPDATES:   1 SEP 2003  HIGHEST RN 577691-42-0

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2003

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available.  See HELP
PROPERTIES for more information.  See STNote 27, Searching Properties
in the CAS Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf


L4   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2003 ACS on STN
RN   461-55-2 /REGISTRY
CN   Butanoic acid, ion(1-) (9CI)  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   Butyric acid, ion(1-) (8CI)
OTHER NAMES:
CN   Butanoate
CN   Butanoate anion
CN   Butyrate
CN   Butyrate anion
CN   Butyrate ion
CN   Butyrate(1-)
FS   3D CONCORD
MF   C4 H7 O2
CI   COM
LC   STN Files:   AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS,
       BIOTECHNO, CA, CAPLUS, CASREACT, CEN, CIN, CSCHEM, CSNB, EMBASE,
       GMELIN*, PIRA, PROMT, SPECINFO, TOXCENTER, TULSA, USPATFULL
         (*File contains numerically searchable property data)
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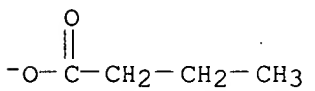

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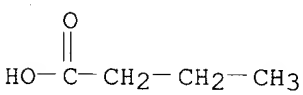
            289 REFERENCES IN FILE CA (1937 TO DATE)
              3 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
            290 REFERENCES IN FILE CAPLUS (1937 TO DATE)


L5   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2003 ACS on STN
RN   107-92-6  REGISTRY
CN   Butanoic acid (9CI)  (CA INDEX NAME)
OTHER CA INDEX NAMES:
```

CN **Butyric acid (6CI, 7CI, 8CI)**
OTHER NAMES:
CN 1-Propanecarboxylic acid
CN Ethylacetic acid
CN Honey robber
CN n-Butanoic acid
CN n-Butyric acid
CN NSC 8415
CN Propylformic acid
FS 3D CONCORD
MF C4 H8 O2
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

18217 REFERENCES IN FILE CA (1937 TO DATE)
467 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
18242 REFERENCES IN FILE CAPLUS (1937 TO DATE)
3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

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=> fil capl
FILE 'CAPLUS' ENTERED AT 17:04:35 ON 03 SEP 2003
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FILE COVERS 1907 - 3 Sep 2003  VOL 139 ISS 10
FILE LAST UPDATED: 2 Sep 2003  (20030902/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.
```

inventors search

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=> d que l3
L1          33 SEA FILE=CAPLUS ABB=ON  YURKOW E?/AU
L2          16 SEA FILE=CAPLUS ABB=ON  MERMELSTEIN F?/AU
L3           2 SEA FILE=CAPLUS ABB=ON  L1 AND L2


=> fil wpids; d que l27; d que l28
FILE 'WPIDS' ENTERED AT 17:04:37 ON 03 SEP 2003
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FILE LAST UPDATED:          3 SEP 2003      <20030903/UP>
MOST RECENT DERWENT UPDATE:     200356        <200356/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE


>>> NEW WEEKLY SDI FREQUENCY AVAILABLE --> see NEWS  <<<

>>> PATENT IMAGES AVAILABLE FOR PRINT AND DISPLAY <<<

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,
    PLEASE VISIT:
 http://www.stn-international.de/training_center/patents/stn_guide.pdf <<<


L27          1 SEA FILE=WPIDS ABB=ON  YURKOW E?/AU


L28          2 SEA FILE=WPIDS ABB=ON  MERMELSTEIN F?/AU


=> s l27-l28
L88          2 (L27 OR L28)

=> fil drugu; d que l41; d que l47
FILE 'DRUGU' ENTERED AT 17:04:40 ON 03 SEP 2003
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FILE LAST UPDATED: 28 AUG 2003        <20030828/UP>
>>>  DERWENT DRUG FILE (SUBSCRIBER)  <<<

>>>  SDI'S MAY BE RUN WEEKLY OR MONTHLY AS OF JUNE 2001.  <<<
>>>  (WEEKLY IS THE DEFAULT). FOR PRICING INFORMATION     <<<
>>>  SEE HELP COST                                        <<<

>>>  FILE COVERS 1983 TO DATE  <<<
>>>  THESAURUS AVAILABLE IN /CT  <<<



L39          19 SEA FILE=DRUGU ABB=ON  YURKOW E?/AU
L40           4 SEA FILE=DRUGU ABB=ON  MERMELSTEIN F?/AU
L41           0 SEA FILE=DRUGU ABB=ON  L39 AND L40



L4            1 SEA FILE=REGISTRY ABB=ON  BUTYRATE/CN
L5            1 SEA FILE=REGISTRY ABB=ON  BUTYRIC ACID/CN
L39          19 SEA FILE=DRUGU ABB=ON  YURKOW E?/AU
L40           4 SEA FILE=DRUGU ABB=ON  MERMELSTEIN F?/AU
L42         118 SEA FILE=DRUGU ABB=ON  L4 OR L5
L43         789 SEA FILE=DRUGU ABB=ON  BUTYRATE/CT
L44        2000 SEA FILE=DRUGU ABB=ON  (REDOX OR OXIDATION(A)REDUCTION)
L47           0 SEA FILE=DRUGU ABB=ON  (L39 OR L40) AND (L42 OR L43) AND L44


=> fil medl; d que l51; d que l54
FILE 'MEDLINE' ENTERED AT 17:04:42 ON 03 SEP 2003

 FILE LAST UPDATED: 2 SEP 2003 (20030902/UP).  FILE COVERS 1958 TO DATE.

 On April 13, 2003, MEDLINE was reloaded.  See HELP RLOAD for details.

 MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the
 MeSH 2003 vocabulary.  See http://www.nlm.nih.gov/mesh/changes2003.html
 for a description on changes.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


L49          29 SEA FILE=MEDLINE ABB=ON  YURKOW E?/AU
L50          12 SEA FILE=MEDLINE ABB=ON  MERMELSTEIN F?/AU
L51           0 SEA FILE=MEDLINE ABB=ON  L49 AND L50



L4            1 SEA FILE=REGISTRY ABB=ON  BUTYRATE/CN
L5            1 SEA FILE=REGISTRY ABB=ON  BUTYRIC ACID/CN
L49          29 SEA FILE=MEDLINE ABB=ON  YURKOW E?/AU
L50          12 SEA FILE=MEDLINE ABB=ON  MERMELSTEIN F?/AU
L52       78666 SEA FILE=MEDLINE ABB=ON  OXIDATION-REDUCTION/CT
L53        5785 SEA FILE=MEDLINE ABB=ON  BUTYRATES/CT OR BUTYRIC ACID/CT OR
                (L4 OR L5)
L54           0 SEA FILE=MEDLINE ABB=ON  (L49 OR L50) AND L52 AND L53


=> fil embase; d que l63; d que l69
FILE 'EMBASE' ENTERED AT 17:04:44 ON 03 SEP 2003
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```

FILE COVERS 1974 TO 28 Aug 2003 (20030828/ED)

EMBASE has been reloaded. Enter HELP RLOAD for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L61          29 SEA FILE=EMBASE ABB=ON  YURKOW E?/AU
L62          12 SEA FILE=EMBASE ABB=ON  MERMELSTEIN F?/AU
L63           0 SEA FILE=EMBASE ABB=ON  L61 AND L62
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L61          29 SEA FILE=EMBASE ABB=ON  YURKOW E?/AU
L62          12 SEA FILE=EMBASE ABB=ON  MERMELSTEIN F?/AU
L64       11170 SEA FILE=EMBASE ABB=ON  OXIDATION REDUCTION REACTION/CT
L65        2316 SEA FILE=EMBASE ABB=ON  OXIDATION REDUCTION POTENTIAL/CT
L66        1734 SEA FILE=EMBASE ABB=ON  OXIDATION REDUCTION STATE/CT OR
                OXIDATION REDUCTION SYSTEM/CT
L67        4141 SEA FILE=EMBASE ABB=ON  BUTYRIC ACID/CT
L69           0 SEA FILE=EMBASE ABB=ON  (L61 OR L62) AND (L64 OR L65 OR L66)
                AND L67
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```
=> fil biosis; d que l75; d que l81
FILE 'BIOSIS' ENTERED AT 17:04:45 ON 03 SEP 2003
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FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 27 August 2003 (20030827/ED)
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L73          60 SEA FILE=BIOSIS ABB=ON  YURKOW E?/AU
L74          26 SEA FILE=BIOSIS ABB=ON  MERMELSTEIN F?/AU
L75           0 SEA FILE=BIOSIS ABB=ON  L73 AND L74
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L4            1 SEA FILE=REGISTRY ABB=ON  BUTYRATE/CN
L5            1 SEA FILE=REGISTRY ABB=ON  BUTYRIC ACID/CN
L73          60 SEA FILE=BIOSIS ABB=ON  YURKOW E?/AU
L74          26 SEA FILE=BIOSIS ABB=ON  MERMELSTEIN F?/AU
L76       29538 SEA FILE=BIOSIS ABB=ON  REDOX OR OXIDATION(A)REDUCTION
L77       28236 SEA FILE=BIOSIS ABB=ON  BUTYRATE OR BUTYRIC ACID
L78        4804 SEA FILE=BIOSIS ABB=ON  (L4 OR L5)
L81           0 SEA FILE=BIOSIS ABB=ON  (L73 OR L74) AND L76 AND (L77 OR L78)
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=> dup rem l3,l88
FILE 'CAPLUS' ENTERED AT 17:04:57 ON 03 SEP 2003
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PROCESSING COMPLETED FOR L3
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PROCESSING COMPLETED FOR L88
L89 3 DUP REM L3 L88 (1 DUPLICATE REMOVED)
ANSWERS '1-2' FROM FILE CAPLUS
ANSWER '3' FROM FILE WPIDS

=> d ibib ab hitrn 1-3

L89 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2000:592582 CAPLUS
DOCUMENT NUMBER: 133:172169
TITLE: Novel redox clamping agents for sensitizing cells to chemotherapeutic agents
INVENTOR(S): **Yurkow, Edward J.; Mermelstein, Fred H.**
PATENT ASSIGNEE(S): Rutgers, the State University of New Jersey, USA
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000048632	A1	20000824	WO 2000-US3878	20000215
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1159004	A1	20011205	EP 2000-913470	20000215
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002537273	T2	20021105	JP 2000-599422	20000215
US 2003036513	A1	20030220	US 2002-228644	20020826

PRIORITY APPLN. INFO.: US 1999-120128P P 19990216
WO 2000-US3878 W 20000215
US 2002-913435 A2 20020202

AB Redox clamping agents which maintain cells in a selected redox state are provided. Also provided are methods of using the redox clamping agents to sensitize cells to chemotherapeutic agents such as antineoplastics, to inhibit hyperproliferation of cells and to stabilize the redox state of cells with abnormal fluctuations in their redox state. Examples are given showing meso-2,3-dimercaptosuccinic acid and 2-mercaptoethanesulfonic acid effects on apoptosis of LNCaP cells, on cellular reduced glutathione levels, on cellular MT levels, and prostate cancer cells.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L89 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2003:133935 CAPLUS
DOCUMENT NUMBER: 138:163526
TITLE: Method for treating cancer
INVENTOR(S): **Yurkow, Edward J.; Mermelstein, Fred H.**
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 6 pp., Cont.-in-part of U.S. Ser. No. 913,435.
CODEN: USXXCO

Searched by Barb O'Bryen, STIC 308-4291

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003036513	A1	20030220	US 2002-228644	20020826
WO 2000048632	A1	20000824	WO 2000-US3878	20000215

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 1999-120128P P 19990216
WO 2000-US3878 W 20000215
US 2002-913435 A2 20020202

AB A method of treating lymphoma, ovarian cancer, colorectal cancer, or gastric cancer by administering an effective amt. of Mesna to a patient is provided. A method for treating and reducing the ED of an anti-cancer agent by administering Mesna in conjunction with an anti-cancer agent is also provided.

L89 ANSWER 3 OF 3 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 1999-302469 [25] WPIDS
DOC. NO. CPI: C1999-088639
TITLE: Use of arsenic compounds for treatment of solid tumors and metastatic neoplastic disease.
DERWENT CLASS: B05 B06
INVENTOR(S): ELLISON, R M; **MERMELSTEIN, F H**; ELLISON, R
PATENT ASSIGNEE(S): (POLA-N) POLARX BIOPHARMACEUTICALS INC; (ELLI-I) ELLISON R M; (MERM-I) MERMELSTEIN F H
COUNTRY COUNT: 83
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9918798	A1	19990422	(199925)*	EN	58
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW					
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW					
AU 9910893	A	19990503	(199937)		
EP 1022951	A1	20000802	(200038)	EN	
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
NO 2000001977	A	20000613	(200040)		
BR 9813085	A	20000822	(200050)		
CN 1282218	A	20010131	(200131)		
KR 2001015755	A	20010226	(200156)		
NZ 503973	A	20010928	(200161)		
JP 2001519366	W	20011023	(200202)		52
MX 2000003653	A1	20010701	(200236)		
AU 751932	B	20020829	(200264)		
US 2002183385	A1	20021205	(200301)		

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
WO 9918798	A1		WO 1998-US21782	19981015
AU 9910893	A		AU 1999-10893	19981015
EP 1022951	A1		EP 1998-953552	19981015
			WO 1998-US21782	19981015
NO 2000001977	A		WO 1998-US21782	19981015
			NO 2000-1977	20000414
BR 9813085	A		BR 1998-13085	19981015
			WO 1998-US21782	19981015
CN 1282218	A		CN 1998-812218	19981015
KR 2001015755	A		KR 2000-703973	20000414
NZ 503973	A		NZ 1998-503973	19981015
			WO 1998-US21782	19981015
JP 2001519366	W		WO 1998-US21782	19981015
			JP 2000-515442	19981015
MX 2000003653	A1		MX 2000-3653	20000414
AU 751932	B		AU 1999-10893	19981015
US 2002183385	A1	Provisional	US 1997-62375P	19971015
			US 1998-173531	19981015

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9910893	A	Based on	WO 9918798
EP 1022951	A1	Based on	WO 9918798
BR 9813085	A	Based on	WO 9918798
NZ 503973	A	Based on	WO 9918798
JP 2001519366	W	Based on	WO 9918798
AU 751932	B	Previous Publ.	AU 9910893
		Based on	WO 9918798

PRIORITY APPLN. INFO: US 1997-62375P 19971015; US 1998-173531 19981015

AB WO 9918798 A UPAB: 20021105

NOVELTY - Solid tumors or metastatic neoplastic disease or hematopoietic disorders are treated by administration of one or more arsenic compounds (I).

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(a) treatment of neoplastic diseases in humans comprising administration of (I) or its salt in combination with at least one other therapeutic agent;

(b) an oral pharmaceutical composition useful for treating neoplastic diseases in a human comprising (I) or its salt and a carrier, diluent or excipient; and

(c) a sterile unit dosage form adapted for parenteral administration comprising a non-lethal amount of arsenic trioxide in an aqueous carrier, the dosage form being contained in a sealed glass container.

ACTIVITY - Anticancer.

MECHANISM OF ACTION - Phosphorous analogue able to interfere with signal transduction in apoptosis; inhibitor of angiogenesis.

USE - The method is particularly useful for treatment of tumors of the epithelial tissue, preferably epithelial glands, epithelial ducts, liver, biliary tract, gastrointestinal tract, respiratory tract or urogenital tract, lymphoid tissue, connective tissue, bone or central nervous system, metastatic neoplastic diseases of the epithelial tissue, lymphoid tissue, connective tissue, bone or central nervous system. The tumor is preferably a squamous cell carcinoma of the esophagus, adenocarcinoma of esophagus, colorectal carcinoma, gastric carcinoma, Hodgkins lymphoma, non-Hodgkin's lymphoma, follicular lymphoma, diffuse lymphoma, lymphoblastic lymphoma, large cell lymphoma, small lymphocytic

lymphoma, neuroblastoma, retinoblastoma, glioblastoma or oligodendroglioma (all claimed).

The compounds are also useful for the treatment of metastatic neoplastic diseases, e.g. primary and metastatic tumors of the central nervous system, refractory primary and metastatic tumors of the central nervous system, breast, lung, bladder and prostate cancer and refractory breast, lung, bladder and prostate cancer.

DESCRIPTION OF DRAWING(S) - The figure is a dose response curve for leukemic cell lines CCRF-CEM, HL-60(TB), K-562, MOLT-4, RPMI-8226 and SR after continuous exposure to 10-5 to 10-9 mu g/ml arsenic trioxide for 2 days.

Dwg.1a/4

```
=> fil capl; d que l24; d que l14
FILE 'CAPLUS' ENTERED AT 17:11:39 ON 03 SEP 2003
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FILE COVERS 1907 - 3 Sep 2003  VOL 139 ISS 10
FILE LAST UPDATED: 2 Sep 2003  (20030902/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.

L4             1 SEA FILE=REGISTRY ABB=ON  BUTYRATE/CN
L5             1 SEA FILE=REGISTRY ABB=ON  BUTYRIC ACID/CN
L6         18507 SEA FILE=CAPLUS ABB=ON  L4 OR L5
L7         12358 SEA FILE=CAPLUS ABB=ON  BUTYRATE/OBI
L8         30927 SEA FILE=CAPLUS ABB=ON  BUTYRIC ACID/OBI
L9         23141 SEA FILE=CAPLUS ABB=ON  REDOX REACTION/CT
L11      1482174 SEA FILE=CAPLUS ABB=ON  CELL?/OBI
L22         6683 SEA FILE=CAPLUS ABB=ON  REDOX POTENTIAL/CT
L23            5 SEA FILE=CAPLUS ABB=ON  (L6 OR L7 OR L8) AND (L9 OR L22) AND
                 L11
L24            3 SEA FILE=CAPLUS ABB=ON  L23 NOT (CELLULOSE OR CELLULOLYTICUM)/O
                 BI

L4             1 SEA FILE=REGISTRY ABB=ON  BUTYRATE/CN
L5             1 SEA FILE=REGISTRY ABB=ON  BUTYRIC ACID/CN
L6         18507 SEA FILE=CAPLUS ABB=ON  L4 OR L5
L7         12358 SEA FILE=CAPLUS ABB=ON  BUTYRATE/OBI
L8         30927 SEA FILE=CAPLUS ABB=ON  BUTYRIC ACID/OBI
L13            4 SEA FILE=CAPLUS ABB=ON  CLAMP?(L)(REDOX OR OXIDATION(A)REDUCTIO
                 N)/OBI
L14            2 SEA FILE=CAPLUS ABB=ON  (L6 OR L7 OR L8) AND L13

=> s (l14 or l24) not l3
L90            2 (L14 OR L24) NOT L3

=> fil wpids; d que l37
FILE 'WPIDS' ENTERED AT 17:11:42 ON 03 SEP 2003
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FILE LAST UPDATED:          3 SEP 2003      <20030903/UP>
MOST RECENT DERWENT UPDATE:     200356        <200356/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE
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text search

previously printed w/ inventor search

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>>> NEW WEEKLY SDI FREQUENCY AVAILABLE --> see NEWS  <<<

>>> PATENT IMAGES AVAILABLE FOR PRINT AND DISPLAY <<<

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,
    PLEASE VISIT:
 http://www.stn-international.de/training_center/patents/stn_guide.pdf <<<


L29         4008 SEA FILE=WPIDS ABB=ON  BUTYRATE
L30         3554 SEA FILE=WPIDS ABB=ON  BUTYRIC ACID
L31        10545 SEA FILE=WPIDS ABB=ON  (REDOX OR OXIDATION(A)REDUCTION)
L32       297121 SEA FILE=WPIDS ABB=ON  CLAMP?
L33       394216 SEA FILE=WPIDS ABB=ON  CELL# OR CELLULAR?
L34            7 SEA FILE=WPIDS ABB=ON  (L29 OR L30) AND L31 AND (L32 OR L33)
L37            6 SEA FILE=WPIDS ABB=ON  L34 AND B/DC
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B/DC = Derwent code

Pharmaceuticals

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=> s l37 not l88
L91            5 L37 NOT L88
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previously printed

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=> fil drugu; d que l48
FILE 'DRUGU' ENTERED AT 17:11:45 ON 03 SEP 2003
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FILE LAST UPDATED: 28 AUG 2003       <20030828/UP>
>>>  DERWENT DRUG FILE (SUBSCRIBER)  <<<

>>>  SDI'S MAY BE RUN WEEKLY OR MONTHLY AS OF JUNE 2001.  <<<
>>>  (WEEKLY IS THE DEFAULT). FOR PRICING INFORMATION     <<<
>>>  SEE HELP COST                                        <<<

>>>  FILE COVERS 1983 TO DATE  <<<
>>>  THESAURUS AVAILABLE IN /CT  <<<


L4             1 SEA FILE=REGISTRY ABB=ON  BUTYRATE/CN
L5             1 SEA FILE=REGISTRY ABB=ON  BUTYRIC ACID/CN
L42          118 SEA FILE=DRUGU ABB=ON  L4 OR L5
L43          789 SEA FILE=DRUGU ABB=ON  BUTYRATE/CT
L44         2000 SEA FILE=DRUGU ABB=ON  (REDOX OR OXIDATION(A)REDUCTION)
L48            4 SEA FILE=DRUGU ABB=ON  (L42 OR L43) AND L44


=> fil medl; d que 157; d que 160
FILE 'MEDLINE' ENTERED AT 17:11:47 ON 03 SEP 2003

 FILE LAST UPDATED: 2 SEP 2003 (20030902/UP).  FILE COVERS 1958 TO DATE.

 On April 13, 2003, MEDLINE was reloaded.  See HELP RLOAD for details.

 MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the
 MeSH 2003 vocabulary.  See http://www.nlm.nih.gov/mesh/changes2003.html
 for a description on changes.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


L4             1 SEA FILE=REGISTRY ABB=ON  BUTYRATE/CN
L5             1 SEA FILE=REGISTRY ABB=ON  BUTYRIC ACID/CN
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L52       78666 SEA FILE=MEDLINE ABB=ON  OXIDATION-REDUCTION/CT
L53        5785 SEA FILE=MEDLINE ABB=ON  BUTYRATES/CT OR BUTYRIC ACID/CT OR
                (L4 OR L5)
L56       48704 SEA FILE=MEDLINE ABB=ON  CLAMP?
L57           0 SEA FILE=MEDLINE ABB=ON  L52 AND L53 AND L56


L52       78666 SEA FILE=MEDLINE ABB=ON  OXIDATION-REDUCTION/CT
L58        2550 SEA FILE=MEDLINE ABB=ON  (BUTYRATES/CT OR BUTYRIC ACID/CT)(L)(P
                D OR PK OR AD OR TU)/CT
L60          14 SEA FILE=MEDLINE ABB=ON  L58/MAJ AND L52
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Subheadings
PD - pharmacology
PK - pharmacokinetics
AD - administration & dosage
TU - Therapeutic use

```
=> fil embase; d que l72
FILE 'EMBASE' ENTERED AT 17:11:49 ON 03 SEP 2003
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 FILE COVERS 1974 TO 28 Aug 2003 (20030828/ED)

 EMBASE has been reloaded. Enter HELP RLOAD for details.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


L64       11170 SEA FILE=EMBASE ABB=ON  OXIDATION REDUCTION REACTION/CT
L65        2316 SEA FILE=EMBASE ABB=ON  OXIDATION REDUCTION POTENTIAL/CT
L66        1734 SEA FILE=EMBASE ABB=ON  OXIDATION REDUCTION STATE/CT OR
                OXIDATION REDUCTION SYSTEM/CT
L67        4141 SEA FILE=EMBASE ABB=ON  BUTYRIC ACID/CT
L71         639 SEA FILE=EMBASE ABB=ON  L67(L)(PD OR PK OR DT OR DO OR AD)/CT
L72           1 SEA FILE=EMBASE ABB=ON  (L64 OR L65 OR L66) AND L71
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PD = pharmacology
PK - pharmacokinetics
DT - drug therapy
DO - dosage
AD - administration

```
=> fil biosis; d que l83; d que l86
FILE 'BIOSIS' ENTERED AT 17:11:50 ON 03 SEP 2003
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FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 27 August 2003 (20030827/ED)


L4            1 SEA FILE=REGISTRY ABB=ON  BUTYRATE/CN
L5            1 SEA FILE=REGISTRY ABB=ON  BUTYRIC ACID/CN
L76       29538 SEA FILE=BIOSIS ABB=ON  REDOX OR OXIDATION(A)REDUCTION
L77       28236 SEA FILE=BIOSIS ABB=ON  BUTYRATE OR BUTYRIC ACID
L78        4804 SEA FILE=BIOSIS ABB=ON  (L4 OR L5)
L79       44804 SEA FILE=BIOSIS ABB=ON  CLAMP?
L83           0 SEA FILE=BIOSIS ABB=ON  L76(10A)L79 AND (L77 OR L78)


L76       29538 SEA FILE=BIOSIS ABB=ON  REDOX OR OXIDATION(A)REDUCTION
L77       28236 SEA FILE=BIOSIS ABB=ON  BUTYRATE OR BUTYRIC ACID
L80     3028098 SEA FILE=BIOSIS ABB=ON  CELL# OR CELLULAR?
L86           1 SEA FILE=BIOSIS ABB=ON  L76 (20A) L77 (20A) L80
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=> dup rem l60,l48,l90,l86,l72,l91
FILE 'MEDLINE' ENTERED AT 17:12:32 ON 03 SEP 2003

FILE 'DRUGU' ENTERED AT 17:12:32 ON 03 SEP 2003
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PROCESSING COMPLETED FOR L60
PROCESSING COMPLETED FOR L48
PROCESSING COMPLETED FOR L90
PROCESSING COMPLETED FOR L86
PROCESSING COMPLETED FOR L72
PROCESSING COMPLETED FOR L91
L92            25 DUP REM L60 L48 L90 L86 L72 L91 (2 DUPLICATES REMOVED)
                  ANSWERS '1-14' FROM FILE MEDLINE
                  ANSWERS '15-18' FROM FILE DRUGU
                  ANSWERS '19-20' FROM FILE CAPLUS
                  ANSWER '21' FROM FILE BIOSIS
                  ANSWERS '22-25' FROM FILE WPIDS

=> d ibib ab hitrn 1-25; fil hom

L92  ANSWER 1 OF 25     MEDLINE on STN
ACCESSION NUMBER:    2003148240     MEDLINE
DOCUMENT NUMBER:     22488471   PubMed ID: 12600871
TITLE:               Membrane peroxidation by lipopolysaccharide and
                     iron-ascorbate adversely affects Caco-2 cell function:
                     beneficial role of butyric acid.
AUTHOR:              Courtois Frederic; Seidman Ernest G; Delvin Edgard; Asselin
                     Claude; Bernotti Sandra; Ledoux Marielle; Levy Emile
CORPORATE SOURCE:    Division of Gastroenterology, Hepatology, and Nutrition,
                     Centre de Recherche, Sainte Justine Hospital and the
                     Department of Nutrition, Universite de Montreal, Montreal,
                     Quebec, Canada.
SOURCE:              AMERICAN JOURNAL OF CLINICAL NUTRITION, (2003 Mar) 77 (3)
                     744-50.
                     Journal code: 0376027. ISSN: 0002-9165.
PUB. COUNTRY:        United States
DOCUMENT TYPE:       Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:            English
FILE SEGMENT:        Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH:         200304
ENTRY DATE:          Entered STN: 20030401
                     Last Updated on STN: 20030417
                     Entered Medline: 20030415
AB   BACKGROUND: Membrane lipid peroxidation may play a role in immune-mediated
     bowel diseases.  OBJECTIVE: We examined the effects of lipopolysaccharide
     (LPS), a ubiquitous endotoxin mediator of gram-negative bacteria, alone
     and in combination with iron-ascorbate, on enterocyte function.
     Furthermore, we assessed the antioxidant capacity of butylated
     hydroxytoluene (BHT) and butyric acid, which are known to play a
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significant role in the welfare of intestinal mucosa. DESIGN: Differentiated intestinal Caco-2 cells were used to study the induction of membrane peroxidation by LPS (100 micro g/mL) and iron-ascorbate (0.2 and 2 mmol/L, respectively) and to examine the beneficial effects of BHT and butyric acid. RESULTS: A significant dose-dependent increase in malondialdehyde, accompanied by lower apical membrane fluidity and significantly decreased sucrase activity, was observed when Caco-2 cells were incubated with LPS. LPS also augmented paracellular permeability ([(14)C]polyethylene glycol flux), prostaglandin E(2) production, and cyclooxygenase-2 (EC 1.14.99.1) expression. These abnormalities were exacerbated by the coadministration of iron-ascorbate, but most of them were suppressed by butyric acid and BHT. CONCLUSION: Bacterial endotoxin and prooxidants may overwhelm antioxidant defenses and become deleterious to enterocyte function, whereas butyric acid and BHT may provide antioxidant protection.

L92 ANSWER 2 OF 25 MEDLINE on STN
ACCESSION NUMBER: 2001379225 MEDLINE
DOCUMENT NUMBER: 21329243 PubMed ID: 11435518
TITLE: Butyrate impairs energy metabolism in isolated perfused liver of fed rats.
AUTHOR: Beauvieux M C; Tissier P; Gin H; Canioni P; Gallis J L
CORPORATE SOURCE: Service de Nutrition et Diabetologie, Hopital Haut-Leveque, F-33600 Pessac France.. mcdb@rmsb.u-bordeaux2.fr
SOURCE: JOURNAL OF NUTRITION, (2001 Jul) 131 (7) 1986-92. Journal code: 0404243. ISSN: 0022-3166.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200108
ENTRY DATE: Entered STN: 20010813
Last Updated on STN: 20010813
Entered Medline: 20010809

AB This study was designed to test the effects of short-chain fatty acids (SCFA) with an even number of carbon atoms on hepatic energy metabolism. The effect of the SCFA was evaluated by measuring liver ATP content and oxygen consumption. The ATP content was evaluated using (31)P nuclear magnetic resonance in isolated liver from fed rats. In addition, respiratory activity (VO(2)) was assessed using Clark electrodes. The livers were perfused with acetate, butyrate or a medium chain length fatty acid, octanoate, at a concentration of 0.05--5.0 mmol/L. The addition of each substrate enhanced the rate of the net ATP consumption (V(i)), establishing a new ATP steady state that required a perfusion time of > or = 20 min, dependent on the chain length and concentration of the fatty acid (FA). The initial V(i) was unchanged for acetate and the ATP level stabilized at 58% of the initial level. Both butyrate and octanoate induced a dose-dependent increase in V(i). This may reflect an ATP-consuming process for the intracellular pH regulation observed during the acidosis associated with the beta-oxidation pathway. At the new steady state, the ATP concentration was approximately 45% of the initial level for both FA. VO(2) was both rapidly and reversibly increased, and the change was a function of butyrate or octanoate concentration and of the chain length. K(m) values were similar for butyrate and octanoate. Because all of the effects were similar for butyrate and octanoate, in contrast to acetate, we suggest that the impairment of the energy metabolism by butyrate resulted from an increase in the FADH(2)/NADH ratio due to beta-oxidation. In conclusion, the difference in the hepatic oxidation pathways of two products of intestinal fermentation (acetate and butyrate) explains their different actions on energy metabolism.

L92 ANSWER 3 OF 25 MEDLINE on STN
ACCESSION NUMBER: 2001431422 MEDLINE

DOCUMENT NUMBER: 21371748 PubMed ID: 11478796
TITLE: Transcriptional response of a human colon adenocarcinoma cell line to sodium butyrate.
AUTHOR: Iacomino G; Tecce M F; Grimaldi C; Tosto M; Russo G L
CORPORATE SOURCE: Istituto di Scienze dell'Alimentazione, Consiglio Nazionale delle Ricerche, via Roma 52 A/C, Avellino, 83100, Italy.
SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (2001 Aug 3) 285 (5) 1280-9.
Journal code: 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200109
ENTRY DATE: Entered STN: 20010917
Last Updated on STN: 20010917
Entered Medline: 20010913

AB Taking advantage of the DNA array screening technology, we analysed the effect of sodium butyrate on mRNA transcription in human HT29 colon adenocarcinoma cells. Out of 588 mRNA species analysed, only 119 resulted expressed. Among these, 60 exhibited a variable degree of modulation after butyrate treatment. Genes linked to the cell growth, apoptosis and oxidative metabolism appeared the most significantly affected. Furthermore, many of the differentially expressed genes are transcription factors and this may account for the variability of the biological effects of butyrate. The pattern of butyrate-affected genes may represent a reference in further analyses of gene expression of intestinal cells and tissues.

L92 ANSWER 4 OF 25 MEDLINE on STN
ACCESSION NUMBER: 2002018666 MEDLINE
DOCUMENT NUMBER: 21337375 PubMed ID: 11444474
TITLE: Effect of sodium butyrate on reactive oxygen species generation by human neutrophils.
AUTHOR: Liu Q; Shimoyama T; Suzuki K; Umeda T; Nakaji S; Sugawara K
CORPORATE SOURCE: Dept. of Hygiene, Hirosaki University School of Medicine, Aomori, Japan.. liuqiang@cc.hirosaki-u.ac.jp
SOURCE: SCANDINAVIAN JOURNAL OF GASTROENTEROLOGY, (2001 Jul) 36 (7) 744-50.
Journal code: 0060105. ISSN: 0036-5521.
PUB. COUNTRY: Norway
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200112
ENTRY DATE: Entered STN: 20020121
Last Updated on STN: 20020121
Entered Medline: 20011204

AB BACKGROUND: Short-chain fatty acids enema has been shown to be effective in the treatment of ulcerative colitis (UC). However, the mechanisms that lead to this response have not been well characterized. The aims of this study were to investigate the effect sodium butyrate has on reactive oxygen species (ROS) generation by human neutrophils, which are responsible for mucosal injury. METHODS: Human neutrophils incubated with or without sodium butyrate were stimulated with opsonized zymosan (OZ) or phorbol myristate acetate (PMA). ROS generation was largely differentiated with flow cytometry assays of hydroethidine oxidation and dichlorofluorescein oxidation for superoxide anion and hydrogen peroxide respectively, and luminol-dependent chemiluminescence for myeloperoxidase-mediated oxidants. RESULTS: Sodium butyrate (up to 50 mM) did not alter hydroethidine oxidation upon stimulation of the OZ or PMA. However, sodium butyrate at a concentration of 25 mM elevated

dichlorofluorescein oxidation to 125 + 8% (P = 0.028) of control upon stimulation of OZ and to 191 +/- 30% (P = 0.0016) upon stimulation of PMA. Contrary to these results, sodium butyrate greatly inhibited chemiluminescence responses in a dose-dependent manner. The inhibition by 50 mM sodium butyrate was 61 +/- 6% upon OZ and 71 +/- 9% upon PMA, respectively. CONCLUSIONS: These data indicate that sodium butyrate up-regulates hydrogen peroxide generation but down-regulates generation of myeloperoxidase-mediated oxidants, the latter being more potent in killing microorganisms and in inducing tissue injury. A possible mechanism is suggested whereby sodium butyrate may inhibit myeloperoxidase activity and hence attenuate the destructive activities of neutrophils in UC.

L92 ANSWER 5 OF 25 MEDLINE on STN
ACCESSION NUMBER: 2001398780 MEDLINE
DOCUMENT NUMBER: 21344360 PubMed ID: 11450452
TITLE: [Effect of butyric acid on physiologic activity of carbohydrate-oxidizing rhodococci].
Vlianie maslianoi kisloty na fiziologicheskuiu aktivnost' uglevodorodokisliaiushchikh rodokokkov.
AUTHOR: Guzev V S; Volde M I; Kulichevskaia I S; Lysak L V
CORPORATE SOURCE: Moscow State University, Vorob'evy gory, Moscow, 119899 Russia.
SOURCE: MIKROBIOLOGIIA, (2001 May-Jun) 70 (3) 313-20.
Journal code: 0376652. ISSN: 0026-3656.
PUB. COUNTRY: Russia: Russian Federation
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: Russian
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200108
ENTRY DATE: Entered STN: 20010827
Last Updated on STN: 20010827
Entered Medline: 20010823

AB Laboratory experiments showed that butyric acid not only fails to meet the trophic requirements of hydrocarbon-oxidizing microorganisms, but even specifically inhibits their assimilatory and dissimilatory activity. Therefore, butyric acid can be referred to as growth inhibitors. The combined mineralization of carbohydrates and hydrocarbons can be described as follows. Plants polymers are converted to monosugars by heterotrophic soil microorganisms. As the concentration of the monosugars grows and oxygen becomes deficient, the monosugars are no longer oxidized completely but are fermented. As a result, glucose transforms to butyric acid, which inhibits hydrocarbon-oxidizing bacteria. It is concluded that, to be efficient, the cleanup of oil-contaminated soils must include measures to intensify the mineralization of carbohydrates and to inhibit their fermentation.

L92 ANSWER 6 OF 25 MEDLINE on STN
ACCESSION NUMBER: 97148658 MEDLINE
DOCUMENT NUMBER: 97148658 PubMed ID: 9011461
TITLE: Antagonistic effects of sulfide and butyrate on proliferation of colonic mucosa: a potential role for these agents in the pathogenesis of ulcerative colitis.
AUTHOR: Christl S U; Eisner H D; Dusel G; Kasper H; Scheppach W
CORPORATE SOURCE: Department of Medicine, University of Wurzburg, Germany.
SOURCE: DIGESTIVE DISEASES AND SCIENCES, (1996 Dec) 41 (12) 2477-81.
Journal code: 7902782. ISSN: 0163-2116.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199701
ENTRY DATE: Entered STN: 19970219

Last Updated on STN: 19970219
Entered Medline: 19970131

AB It has been shown that feces of patients with ulcerative colitis uniformly contain sulfate reducing bacteria. Sulfide produced by these bacteria interferes with butyrate-dependent energy metabolism of cultured colonocytes and may be involved in the pathogenesis of ulcerative colitis. Mucosal biopsies from the sigmoid rectum of 10 patients (no caner, polyps, inflammatory bowel disease) were incubated with either NaCl, sodium hydrogen sulfide (1 mmol/L), a combination of both sodium hydrogen sulfide and butyrate (10 mmol/L), or butyrate. Mucosal proliferation was assessed by bromodeoxyuridine labeling of cells in S-phase. Compared to NaCl, sulfide increased the labeling of the entire crypt significantly, by 19% ($p < 0.05$). This effect was due to an expansion of the proliferative zone to the upper crypt (compartments 3-5), where the increase in proliferation was 54%. Sulfide-induced hyperproliferation was reversed when samples were coincubated with sulfide and butyrate. The study shows that sodium hydrogen sulfide induces mucosal hyperproliferation. Our data support a possible role of sulfide in the pathogenesis of UC and confirm the role of butyrate in the regulation of colonic proliferation and in the treatment of UC.

L92 ANSWER 7 OF 25 MEDLINE on STN
ACCESSION NUMBER: 87311740 MEDLINE
DOCUMENT NUMBER: 87311740 PubMed ID: 3625784
TITLE: Effects of the fatty acid blocking agents, oxfenicine and 4-bromocrotonic acid, on performance in aerobic and ischemic myocardium.
AUTHOR: Molaparast-Saless F; Liedtke A J; Nellis S H
CONTRACT NUMBER: HL-21209 (NHLBI)
SOURCE: JOURNAL OF MOLECULAR AND CELLULAR CARDIOLOGY, (1987 May) 19 (5) 509-20.
Journal code: 0262322. ISSN: 0022-2828.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198709
ENTRY DATE: Entered STN: 19900305
Last Updated on STN: 19980206
Entered Medline: 19870925

AB Two fatty acid blocking agents, oxfenicine (33 mg/kg) and 4-bromocrotonic acid (0.34 mg/kg/min for 70 min), were used to selectively adjust levels of long-chain acyl CoA and carnitine in aerobic and ischemic myocardium. The purpose of the study was to test whether the shift in these amphiphiles was associated with alterations of mechanical function in intact myocardium. The extracorporeally perfused swine heart preparation was used. Hearts were perfused at aerobic levels for 40 min following which flow to the anterior descending (LAD) circulation was reduced by 50% for the final 30 min of perfusion. All hearts were perfused with excess fatty acids to raise serum levels to 1.37 +/- 0.16 mumol/mol throughout the studies. Oxfenicine and 4-bromocrotonic acid affected a 20% (P less than 0.05 and P less than 0.05, respectively) further decline in 14CO2 production from labelled palmitate as compared with placebo hearts during regional ischemia. Accompanying this were downward shifts in acyl carnitine (-27 delta %, NS in aerobic tissue; -70 delta %, P less than 0.001 in ischemic tissue) and acyl CoA (-13 delta %, NS in aerobic tissue; -33 delta %, P less than 0.01 in ischemic tissue) for oxfenicine and upward shifts of acyl carnitine (+212 delta %, P less than 0.001 in aerobic tissue; -9 delta %, NS in ischemic tissue) and acyl CoA (+78 delta %, P less than 0.001 in aerobic tissue; +29 delta %, P less than 0.025 in ischemic tissue) for 4-bromocrotonic acid. These adjustments in amphiphiles were further associated with improved function (+55 delta % increase in max LV dP/dt, P less than 0.05) in oxfenicine-treated hearts

and depressed function (+87 delta % increase in LVEDP, P less than 0.05) in 4-bromocrotonic acid-treated hearts. Thus, at comparable conditions of coronary flow, left ventricular pressure, and fatty acid availability and oxidation between treatments, depletion or build-up of CoA and carnitine esters as affected by selective inhibitors of fatty acid metabolism were causally linked to improved or impaired cardiac performance in intact hearts.

L92 ANSWER 8 OF 25 MEDLINE on STN
ACCESSION NUMBER: 86296771 MEDLINE
DOCUMENT NUMBER: 86296771 PubMed ID: 3741887
TITLE: Effect of alpha-ketobutyrate on palmitic acid and pyruvate metabolism in isolated rat hepatocytes.
AUTHOR: Brass E P
CONTRACT NUMBER: AM36069 (NIADDK)
BRSG-05357 (DRS)
SOURCE: BIOCHIMICA ET BIOPHYSICA ACTA, (1986 Aug 29) 888 (1) 18-24.
Journal code: 0217513. ISSN: 0006-3002.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198610
ENTRY DATE: Entered STN: 19900321
Last Updated on STN: 19970203
Entered Medline: 19861007

AB alpha-Ketobutyrate, an intermediate in the catabolism of threonine and methionine, is metabolized to CO2 and propionyl-CoA. Recent studies have suggested that propionyl-CoA may interfere with normal hepatic oxidative metabolism. Based on these observations, the present study examined the effect of alpha-ketobutyrate on palmitic acid and pyruvate metabolism in hepatocytes isolated from fed rats. alpha-Ketobutyrate (10 mM) inhibited the oxidation of palmitic acid by 34%. In the presence of 10 mM carnitine, the inhibition of palmitic acid oxidation by alpha-ketobutyrate was reduced to 21%. These observations are similar to those previously reported using propionate as an inhibitor of fatty acid oxidation, suggesting that propionyl-CoA may be responsible for the inhibition. alpha-Ketobutyrate (10 mM) inhibited 14CO2 generation from [14C]pyruvate by more than 75%. This inhibition was quantitatively larger than seen with equal concentrations of propionate. Carnitine (10 mM) had no effect on the inhibition of pyruvate oxidation by alpha-ketobutyrate despite the generation of large amounts of propionylcarnitine during the incubation. alpha-Ketobutyrate inhibited [14C]glucose formation from [14C]pyruvate by more than 60%. This contrasted to a 30% inhibition caused by propionate. These results suggest that alpha-ketobutyrate inhibits hepatic pyruvate metabolism by a mechanism independent of propionyl-CoA formation. The present study demonstrates that tissue accumulation of alpha-ketobutyrate may lead to disruption of normal cellular metabolism. Additionally, the production of propionyl-CoA from alpha-ketobutyrate is associated with increased generation of propionylcarnitine. These observations provide further evidence that organic acid accumulation associated with a number of disease states may result in interference with normal hepatic metabolism and increased carnitine requirements.

L92 ANSWER 9 OF 25 MEDLINE on STN
ACCESSION NUMBER: 84138664 MEDLINE
DOCUMENT NUMBER: 84138664 PubMed ID: 6699916
TITLE: Inhibition of fatty acid oxidation and decrease of oxygen consumption of working rat heart by 4-bromocrotonic acid.
AUTHOR: Hutter J F; Schweickhardt C; Piper H M; Spieckermann P G
SOURCE: JOURNAL OF MOLECULAR AND CELLULAR CARDIOLOGY, (1984 Jan) 16 (1) 105-8.
Journal code: 0262322. ISSN: 0022-2828.

PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198404
ENTRY DATE: Entered STN: 19900319
Last Updated on STN: 19900319
Entered Medline: 19840416

AB Nonesterified fatty acids (NEFA), glucose and lactate are major fuels for myocardial energy production. The ratio of energy produced and oxygen consumed, which can be expressed as ATP/O ratio, is different for each substrate: e.g. 3.17 for glucose and 2.83 for palmitate. Direct measurements, however, have shown that the difference of oxygen consumption is about twice as great as theoretically expected. This difference is of little significance under aerobic conditions, but may be important when oxygen supply is restricted. Numerous attempts have been made to reduce oxygen consumption by activating carbohydrate oxidation or inhibiting fatty acid metabolism. As the rate of fatty acid oxidation has been shown to depend on arterial concentrations of NEFA and albumin, this may be one point of control. Further approaches such as increasing the arterial levels of glucose, insulin and potassium, have been controversially discussed. As 4-bromocrotonic acid has been found to inhibit the fatty acid oxidation in isolated rat heart mitochondria [8], this might be an effective agent to save oxygen by reducing the rate of fatty acid oxidation in intact hearts.

L92 ANSWER 10 OF 25 MEDLINE on STN
ACCESSION NUMBER: 76183377 MEDLINE
DOCUMENT NUMBER: 76183377 PubMed ID: 1267487
TITLE: Effects of the herbicide 2,4-DB and fungicide captan on reactions of mitochondria and chloroplasts.
AUTHOR: Budimir M; Plesnicar M; Kljajic R
SOURCE: ARCHIVES OF ENVIRONMENTAL CONTAMINATION AND TOXICOLOGY, (1976) 4 (2) 166-74.
Journal code: 0357245. ISSN: 0090-4341.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197607
ENTRY DATE: Entered STN: 19900313
Last Updated on STN: 19900313
Entered Medline: 19760706

AB The effects of the herbicide 4(2,4-dichlorophenoxy)butyric acid (2,4-DB) and fungicide N-(trichloromethyltio)-4-cyclohexene-1,2-dicarboximide (captan) on electron transport processes of mitochondria and chloroplasts have been investigated. Chloroplasts, isolated from spinach leaves (Spinacia oleracea L.), were treated with pesticide prior to the addition of electron acceptor and ADP. White potato (Solanum tuberosum L.) mitochondria were either incubated with pesticide before the addition of substrate, or they were treated with pesticide after the addition of substrate and ADP. Captan inhibited oxidation of malate by mitochondria and acted as an uncoupler. With succinate as sunstrate captan was found to stimulate state 4 respiration, as substrate captan was found to stimulate state 4 respiration, with the loss of coupled phosphorylation only at higher concentrations of fungicide. The herbicide 2,4-DB appeared to be 5 to 10 times less effective than captain. Both compounds inhibited phosphrylation-coupled succinate oxidation at higher concentrations and malate-coupled phosphorylation at lower concentrations. They acted as inhibitors of NADH-cytochrome c reductase. Both pesticides inhibited noncyclic electron transport in chloroplasts. The rate of ferricyanide reduction in the presence and absence of phosphorylating agents was reduced, and although the rate of ATP generation was reduced also, the

P/2e ratio was not changed much under the influence of pesticides.

L92 ANSWER 11 OF 25 MEDLINE on STN
ACCESSION NUMBER: 74014902 MEDLINE
DOCUMENT NUMBER: 74014902 PubMed ID: 4355784
TITLE: The mode of action of beta-benzal butyric acid, an hypocholesterolemic drug, in affecting mitochondrial respiration.
AUTHOR: Speranza M L; Gaiti A; Nessi R; Binaglia L; Porcellati G
SOURCE: BIOCHEMICAL PHARMACOLOGY, (1971 Sep) 20 (9) 2477-84. Journal code: 0101032. ISSN: 0006-2952.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197312
ENTRY DATE: Entered STN: 19900310
Last Updated on STN: 19900310
Entered Medline: 19731219

L92 ANSWER 12 OF 25 MEDLINE on STN
ACCESSION NUMBER: 71031030 MEDLINE
DOCUMENT NUMBER: 71031030 PubMed ID: 4320224
TITLE: The inhibition of mitochondrial respiration by beta-benzal butyric acid and the possible relationship to cholesterol biosynthesis.
AUTHOR: Speranza M L; Gaiti A; De Medio G E; Montanini I; Porcellati G
SOURCE: BIOCHEMICAL PHARMACOLOGY, (1970 Oct) 19 (10) 2737-43. Journal code: 0101032. ISSN: 0006-2952.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197101
ENTRY DATE: Entered STN: 19900101
Last Updated on STN: 19900101
Entered Medline: 19710104

L92 ANSWER 13 OF 25 MEDLINE on STN
ACCESSION NUMBER: 72016114 MEDLINE
DOCUMENT NUMBER: 72016114 PubMed ID: 5520748
TITLE: Metabolic effects of -guanidinobutyramide. II. In vitro studies on muscle, adipose tissue and the endocrine pancreas.
AUTHOR: Malaisse W J; Mandelbaum I M; Franckson J R
SOURCE: HORMONE AND METABOLIC RESEARCH, (1970 Jan) 2 (1) 21-7. Journal code: 0177722. ISSN: 0018-5043.
PUB. COUNTRY: GERMANY, WEST: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 197112
ENTRY DATE: Entered STN: 19900310
Last Updated on STN: 19900310
Entered Medline: 19711216

L92 ANSWER 14 OF 25 MEDLINE on STN
ACCESSION NUMBER: 67217080 MEDLINE
DOCUMENT NUMBER: 67217080 PubMed ID: 6036737
TITLE: The mechanisms underlying the hypolipidaemic effects of atromid S, nicotinic acid and benzalecene. I. The metabolism of free fatty acid-albumin complex by the

isolated perfused liver.
AUTHOR: Mishkel M A; Webb W F
SOURCE: BIOCHEMICAL PHARMACOLOGY, (1967 May) 16 (5) 897-905.
Journal code: 0101032. ISSN: 0006-2952.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 196710
ENTRY DATE: Entered STN: 19900101
Last Updated on STN: 19900101
Entered Medline: 19671020

L92 ANSWER 15 OF 25 DRUGU COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 2002-24173 DRUGU P B
TITLE: Phytochemical treatment of HT29 colon carcinoma cells results in decreased proliferation, increased expression of p21 and oxidation of intracellular GSH/GSSG **redox** potential.
AUTHOR: Odom R Y; Bischoff S R; Kirlin W G
CORPORATE SOURCE: Morehouse-Sch.Med.
LOCATION: Atlanta, Ga., USA
SOURCE: Proc.Am.Assoc.Cancer Res. (43, 93 Meet., 125, 2002) ISSN: 0197-016X
AVAIL. OF DOC.: Morehouse School of Medicine, Atlanta, GA, U.S.A.
LANGUAGE: English
DOCUMENT TYPE: Journal
FIELD AVAIL.: AB; LA; CT
FILE SEGMENT: Literature
AB Phytochemical treatment of HT29 colon adenocarcinoma cells with the dietary chemoprotective agents: benzyl isothiocyanate (BIT), dimethyl fumarate (DMF), allyl disulfide (ADS) and lycopene (LYC), like sodium butyrate (NaB), resulted in decreased proliferation, increased expression of p21 and decrease of the intracellular glutathione (GSH) to glutathione disulfide (GSSG) ratio. Thus, the decreased cell proliferation due to treatment with chemoprotective compounds may potentially involve a link between the glutathione **redox** potential and p21 expression. (conference abstract: 93rd Annual Meeting of the American Association for Cancer Research, San Francisco, California, USA, 2002).

L92 ANSWER 16 OF 25 DRUGU COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 1988-26688 DRUGU P
TITLE: Modification of the Hypoxic Fraction of a Xenografted Human Colon Tumor by Differentiation-Inducing Agents.
AUTHOR: Leith J T
LOCATION: Providence, Rhode Island, United States
SOURCE: J.Natl.Cancer Inst. (80, No. 6, 444-47, 1988) 2 Fig. 2 Tab. 11 Ref.
CODEN: JNCIAM
AVAIL. OF DOC.: Department of Radiation Medicine and Biology Research, Rhode Island Hospital, Providence, RI 02903, U.S.A.
LANGUAGE: English
DOCUMENT TYPE: Journal
FIELD AVAIL.: AB; LA; CT
FILE SEGMENT: Literature
AB The hypoxic fractions of xenografted HCT-15 colon adenocarcinoma tumors in mice were markedly decreased by i.p. N-methylformamide (NMF) or Na butyrate (NAB) (both Aldrich). It is suggested that selected differentiation-inducing agents could be of value for treatment of human solid tumors that contain hypoxic cells.

L92 ANSWER 17 OF 25 DRUGU COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 1985-42531 DRUGU T

TITLE: Vaginal **Redox** Potential in Bacterial Vaginosis (Nonspecific Vaginitis).
AUTHOR: Holmes K K; Chen K C S; Lipinski C M; Eschenbach D A
LOCATION: Seattle, Washington, United States
SOURCE: J.Infect.Dis. (152, No. 2, 379-82, 1985) 2 Fig. 15 Ref.
CODEN: JIDIAQ ISSN: 0022-1899
AVAIL. OF DOC.: Department of Medicine (ZA-92), Harborview Medical Center, 325 Ninth Avenue, Seattle, Washington 98104, U.S.A.
LANGUAGE: English
DOCUMENT TYPE: Journal
FIELD AVAIL.: AB; LA; CT
FILE SEGMENT: Literature
AB In 15 women with bacterial vaginosis due to Gardnerella vaginalis, Mycoplasma hominis and Ureaplasma urealyticum, the reduced **redox** potential (Eh) at the vaginal epithelial surface, and the elevated pH of vaginal fluid were normalized following successful treatment with metronidazole (MN). It is concluded that the low **redox** potential during vaginosis is due to microbial metabolism and is not a persistent host factor responsible for the anaerobic vaginal flora.

L92 ANSWER 18 OF 25 DRUGU COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 1984-13108 DRUGU P B
TITLE: Substrate Dependence of Myocardial Response to Hypoxia in the Presence of Theophylline.
AUTHOR: Snow T R; Caspar T
LOCATION: Oklahoma City, Oklahoma, United States
SOURCE: Am.J.Physiol. (245, No. 2, H363-H367, 1983) 2 Fig. 1 Tab. 30 Ref.
CODEN: AJPHAP ISSN: 0002-9513
AVAIL. OF DOC.: Cardiovascular Laboratory, Oklahoma Medical Research Foundation, Oklahoma City, Oklahoma 73104, U.S.A.
LANGUAGE: English
DOCUMENT TYPE: Journal
FIELD AVAIL.: AB; LA; CT
FILE SEGMENT: Literature
AB The effects of glycogenolysis stimulation with theophylline (TH) on the ability of isolated rabbit papillary muscles to sustain and recover from transient hypoxic episodes were investigated. Different substrates were used, comprising glucose (G), pyruvate (P), and butyrate (B), either to support glycogen levels, or permit their depletion. In the absence of TH, G was associated with a smaller decrease in the developed tension during the hypoxic period than P or B, and the extent of recovery was not substrate-dependent. The addition of TH was accompanied by a substrate-dependent increase in developed tension. TH Increased the impact of hypoxia on mechanical performance.

L92 ANSWER 19 OF 25 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2002:555299 CAPLUS
DOCUMENT NUMBER: 137:103875
TITLE: Redox therapy for tumors
INVENTOR(S): Hoffman, Arnold
PATENT ASSIGNEE(S): Israel
SOURCE: PCT Int. Appl., 36 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002056823	A2	20020725	WO 2002-IL51	20020118

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
PRIORITY APPLN. INFO.: IL 2001-140970 A 20010118
AB A method for treating malignancies and/or otherwise controlling the growth and/or proliferative behavior and/or other biol. functions of a cell displaying malignant properties, through the control of the redox state or environment of the cell, preferably through the administration of a GSH-decreasing agent.
IT **107-92-6, Butyric acid**, biological studies
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(redox therapy for tumors: GSH-decreasing agents)

L92 ANSWER 20 OF 25 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1999:477502 CAPLUS
DOCUMENT NUMBER: 131:253478
TITLE: Phragmites die-back: toxic effects of propionic, butyric and caproic acids in relation to pH
AUTHOR(S): Armstrong, J.; Armstrong, W.
CORPORATE SOURCE: Department of Biological Sciences, University of Hull, Hull, HU6 7RX, UK
SOURCE: New Phytologist (1999), 142(2), 201-217
CODEN: NEPHAV; ISSN: 0028-646X
PUBLISHER: Cambridge University Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Symptoms which are assocd. with die-back in Phragmites: growth inhibition, root and bud death, premature shoot senescence, blocked aeration and vascular systems, esp. in rhizomes and roots, and abnormal surface and internal cell-wall lignification and suberization of roots were induced by each of three of the lower volatile org. acids, propionic, butyric and caproic. These acids were applied in nutrient media in concns. similar to those previously assocd. with die-back sites and/or in sediments contg. rotting rhizomes and roots of the plant. At concns. of 1.4 and 0.56 mM, resp., butyric and caproic acids were each found to be highly toxic at pH 4.5, but relatively innocuous at pH 6. Propionic acid, applied at a much higher concn. of 10.4 mM, was highly toxic at both pH 4.5 and 6. The results support previous findings that the undissociated forms of the org. acids are the more toxic. Rhizomes and roots, rotting in water or waterlogged sand, released cocktails of acids and produced pH in the range 4.8-5.4. Phragmites seedlings planted in these media died within 12 h. Overall, the results support the theory that die-back in Phragmites can be induced and/or perpetuated by org. acids released from the decaying underground parts of the plant or other sources of org. matter.
IT **107-92-6**, Butanoic acid, biological studies
RL: ADV (Adverse effect, including toxicity); POL (Pollutant); BIOL (Biological study); OCCU (Occurrence)
(toxicity of propionic, butyric and caproic acids in relation to pH to Phragmites australis and Phragmites die-back)
REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L92 ANSWER 21 OF 25 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 2
ACCESSION NUMBER: 2000:82941 BIOSIS
DOCUMENT NUMBER: PREV200000082941

Searched by Barb O'Bryen, STIC 308-4291

TITLE: Glutathione redox potential in response to differentiation and enzyme inducers.
AUTHOR(S): Kirlin, Ward G.; Cai, Jiyang; Thompson, Sally A.; Diaz, Dolores; Kavanagh, Terrance J.; Jones, Dean P. (1)
CORPORATE SOURCE: (1) Department of Biochemistry, Emory University School of Medicine, Atlanta, GA, 30322 USA
SOURCE: Free Radical Biology & Medicine, (Dec., 1999) Vol. 27, No. 11-12, pp. 1208-1218.
ISSN: 0891-5849.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The reduced glutathione (GSH)/oxidized glutathione (GSSG) redox state is thought to function in signaling of detoxification gene expression, but also appears to be tightly regulated in cells under normal conditions. Thus it is not clear that the magnitude of change in response to physiologic stimuli is sufficient for a role in redox signaling under nontoxicologic conditions. The purpose of this study was to determine the change in 2GSH/GSSG redox during signaling of differentiation and increased detoxification enzyme activity in HT29 **cells**. We measured GSH, GSSG, **cell** volume, and **cell** pH, and we used the Nernst equation to determine the changes in **redox** potential Eh of the 2GSH/GSSG pool in response to the differentiating agent, sodium **butyrate**, and the detoxification enzyme inducer, benzyl isothiocyanate. Sodium butyrate caused a 60-mV oxidation (from -260 to -200 mV), an oxidation sufficient for a 100-fold change in protein dithiols:disulfide ratio. Benzyl isothiocyanate caused a 16-mV oxidation in control cells but a 40-mV oxidation (to -160 mV) in differentiated cells. Changes in GSH and mRNA for glutamate:cysteine ligase did not correlate with Eh; however, correlations were seen between Eh and glutathione S-transferase (GST) and nicotinamide adenine dinucleotide phosphate (NADPH):quinone reductase activities (N:QR). These results show that 2GSH/GSSG redox changes in response to physiologic stimuli such as differentiation and enzyme inducers are of a sufficient magnitude to control the activity of redox-sensitive proteins. This suggests that physiologic modulation of the 2GSH/GSSG redox poise could provide a fundamental parameter for the control of cell phenotype.

L92 ANSWER 22 OF 25 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 2001-050889 [07] WPIDS
DOC. NO. NON-CPI: N2001-038966
DOC. NO. CPI: C2001-014246
TITLE: Continuous determination of concentration of organisms suspended in liquid is achieved by inference from a variation in parameters of one or more metabolites, using data acquisition system.
DERWENT CLASS: **B04** C07 D13 D14 D15 D16 J04 S03
INVENTOR(S): HOEFLER, T; HOLZHAUER, P; WALITZA, E
PATENT ASSIGNEE(S): (FRAU) FRAUNHOFER GES FOERDERUNG ANGEWANDTEN
COUNTRY COUNT: 22
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
DE 19921999	A1	20001116	(200107)*		12
WO 2000070078	A2	20001123	(200107)	GE	
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
W: CA JP US					
EP 1179174	A2	20020213	(200219)	GE	
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
JP 2002543849 W		20021224	(200313)		39
DE 19921999	C2	20030213	(200314)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 19921999	A1	DE 1999-19921999	19990512
WO 2000070078	A2	WO 2000-EP4289	20000512
EP 1179174	A2	EP 2000-936736	20000512
		WO 2000-EP4289	20000512
JP 2002543849	W	JP 2000-618483	20000512
		WO 2000-EP4289	20000512
DE 19921999	C2	DE 1999-19921999	19990512

FILING DETAILS:

PATENT NO	KIND		PATENT NO
EP 1179174	A2	Based on	WO 2000070078
JP 2002543849	W	Based on	WO 2000070078

PRIORITY APPLN. INFO: DE 1999-19921999 19990512

AB DE 19921999 A UPAB: 20010202

NOVELTY - Determining the concentration of organisms in a liquid, comprising measuring at least one time-dependent parameter of a metabolite in a line section filled with the liquid, using at least one data acquisition device, is new.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for apparatus for performing the novel method.

USE - To determine concentrations of organisms, particularly microorganisms in fluids, and to examine waste water, culture fluids, media and liquids from foods, natural and synthetic medicines, cosmetics, pharmaceuticals, agriculture, breweries, fermentation, medicines, and dairies.

ADVANTAGE - The method is on-line, continuous, and possibly in-situ, in contrast to laboratory methods. High accuracy can be achieved. The results are achieved in an interval of e.g. 5-240 minutes, depending on the conditions. No additional, artificial nutrient need be provided for the microorganisms. There is no need to concentrate the organisms. The system is readily micro-engineered using modern techniques, with a line (capillary) of only a few microns diameter and several centimeters in length.

DESCRIPTION OF DRAWING(S) - The drawing shows a schematic diagram of an apparatus for determining microorganism concentration.

Pump 5

Line section 46

Display 56

Data acquisition system 3, 3', 50.

Dwg.1/6

L92 ANSWER 23 OF 25 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN

ACCESSION NUMBER: 1999-574276 [49] WPIDS

DOC. NO. NON-CPI: N1999-423485

DOC. NO. CPI: C1999-167692

TITLE: Disposable electrochemical sensor for glucose meter used by diabetics.

DERWENT CLASS: **B04** D16 S03

INVENTOR(S): EDWARDS, S S; STEWART, A A; SCOTT, S; STEWART, A

PATENT ASSIGNEE(S): (ABBO) ABBOTT LAB; (MEDI-N) MEDISENSE INC

COUNTRY COUNT: 25

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
GB 2337122	A	19991110	(199949)*		40

WO 9958709 A1 19991118 (200002) EN
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU BR CA JP MX US
AU 9938358 A 19991129 (200018)
BR 9910284 A 20010109 (200106)
EP 1075538 A1 20010214 (200111) EN
R: AT BE CH DE ES FR GB IT LI NL
MX 2000010982 A1 20010501 (200227)
JP 2002514744 W 20020521 (200236) 32
GB 2337122 B 20021113 (200282)
US 6540891 B1 20030401 (200324)
AU 758617 B 20030327 (200330)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
GB 2337122	A	GB 1998-9963	19980508
WO 9958709	A1	WO 1999-GB1424	19990506
AU 9938358	A	AU 1999-38358	19990506
BR 9910284	A	BR 1999-10284	19990506
		WO 1999-GB1424	19990506
EP 1075538	A1	EP 1999-920981	19990506
		WO 1999-GB1424	19990506
MX 2000010982	A1	MX 2000-10982	20001108
JP 2002514744	W	WO 1999-GB1424	19990506
		JP 2000-548500	19990506
GB 2337122	B	GB 1998-9963	19980508
US 6540891	B1	WO 1999-GB1424	19990506
		US 2001-674891	20010111
AU 758617	B	AU 1999-38358	19990506

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9938358	A	Based on	WO 9958709
BR 9910284	A	Based on	WO 9958709
EP 1075538	A1	Based on	WO 9958709
JP 2002514744	W	Based on	WO 9958709
US 6540891	B1	Based on	WO 9958709
AU 758617	B	Previous Publ.	AU 9938358
		Based on	WO 9958709

PRIORITY APPLN. INFO: GB 1998-9963 19980508

AB GB 2337122 A UPAB: 20011211
NOVELTY - The pseudo reference/counter electrode (6a,b) comprises an electrode pad coated with a mixture of silver and silver chloride. The electrical resistance in the circuit path from the contact pad to the dummy electrode through the dummy electrode is significantly greater than the resistance in the circuit path from the contact pad connected to the working electrode through the working electrode.

DETAILED DESCRIPTION - Disposable test strip for attaching to the signal readout circuitry of a meter which performs an amperometric test to detect a current representative of the concentration of an analyte in a complex liquid medium comprises:

(i) a working electrode (5) which comprises an electrode pad coated with both a substance designed to engage the analyte in an **oxidation-reduction** reaction and a mediator compound which will transfer electrons between the **oxidation-reduction** reaction and the electrode pad;

(ii) a dummy electrode (5a) which comprises an electrode pad coated with the same amount of mediator compound as the working electrode, but

lacks the substance to engage the analyte in the **redox** reaction;

(iii) a pseudo reference/counter electrode which comprises an electrode pad coated with a material that contains both the oxidized and reduced form of a chemical species which is designed to undergo a reduction or oxidation reaction to balance the opposite reaction at the working and dummy electrodes; and

(iv) three conductive tracks (2), each extending from a contact pad adapted to interface with the readout circuitry to one of the electrode pads (3), and which is in electrical contact with both its contact pad and its electrode pad.

The electrical resistance in the circuit path from the contact pad to the dummy electrode through the dummy electrode is significantly greater than the resistance in the circuit path from the contact pad connected to the working electrode through the working electrode.

USE - Measuring analytes in complex liquid media, e.g. glucose in human blood, by amperometric methods, especially for a glucose meter used by diabetics.

ADVANTAGE - The HBDH/NADH/1,10 PQ system has a low operating potential, preventing interference from other species when using an analyte that has a limited linear response range, e.g. ketones. The redesigned pseudo reference/counter electrode handles higher current loads without displaying a significant shift in half-**cell** potential. The increased resistance of the dummy electrode decreases the likelihood of a non-monotonic current decay at the working electrode and the consequent abortion of a test.

DESCRIPTION OF DRAWING(S) - The figure shows an exploded view of the sensor componentry.

electrode supports 1
conductive tracks 2
pads 3
pseudo reference/counter electrode 4
working electrode 5
dummy electrode 5a
silver/silver chloride particle tracks 6a,6b
hydrophobic electrically insulating material 7
electrode layer 8
counter electrode 8a
fine mesh 9
coarser mesh 10
hydrophobic electrically insulating ink 11
sample transfer path 12
liquid/vapor impermeable cover membrane 13
small aperture 14

Dwg.3/5

L92 ANSWER 24 OF 25 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 1987-143155 [20] WPIDS
CROSS REFERENCE: 1986-028208 [04]; 1986-028295 [04]; 1987-192380 [27]; 1992-131513 [16]; 2000-146867 [13]; 2003-447401 [42]
DOC. NO. CPI: C1987-059669
TITLE: Electrolyte soln. for in vivo use - contg. sodium and chloride and at least one of l-lactate and pyruvate and d-beta hydroxy **butyrate** and acetoacetate.
DERWENT CLASS: **B05**
PATENT ASSIGNEE(S): (VEEC-I) VEECH R L
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 4663166	A	19870505	(198720)*		46

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 4663166	A	US 1985-748232	19850624

PRIORITY APPLN. INFO: US 1985-748232 19850624; US 1984-623510 19840622

AB US 4663166 A UPAB: 20030703
An aq. soln. suitable for fluid therapy comprises on the basis of 1 l of soln., 130-165 mM Na, 80-130 mM chloride and 0.5-60 mM of at least one of (a) l-lactate and pyruvate in a ratio of 20:1-1:1 and (b) d-beta-hydroxybutyrate and acetoacetate in a ratio of 6:1-0.5:1, the Na to chloride ratio being 1.24-1.6 and the pH ranging from 5-9.

The soln. may also contain 0.5-60 mM of bicarbonate and CO2 in a ratio of 0.1:1-55:0.1.

USE/ADVANTAGE - The solns. can include physiologically normal concns. of Mg(2+) and Ca(2+). When used for mammalian admin. the soln. tends to maintain and normalise in plasma the milli equivalent ratio of Na cations to chloride anions in the normal range, tends to maintain and normalise the **redox** state and the phosphorylation potential. The solns. can be used in electrolyte and fluid replacement, parenteral nutrition and dialysis.
Dwg.0/0

L92 ANSWER 25 OF 25 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 1986-028208 [04] WPIDS
CROSS REFERENCE: 1986-028295 [04]; 1987-143155 [20]; 1987-192380 [27]; 1992-131513 [16]; 2000-146867 [13]; 2003-447401 [42]
DOC. NO. CPI: C1986-012011
TITLE: Aq. electrolyte soln. for fluid therapy, nutrition and dialysis - contains sodium and chloride ion ratio for normalisation etc. with lower toxicity than prior solns..
DERWENT CLASS: **B05** C03 P34
INVENTOR(S): VEECH, R L
PATENT ASSIGNEE(S): (VEEC-I) VEECH R L
COUNTRY COUNT: 38
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 8600227	A	19860116	(198604)*	EN	154
RW: AT BE CF CG CH CM DE DK FR GB IT LI LU MC ML MR MW NL SD SE SN TD TG					
W: AU BB BG BR FI HU JP KP KR LK MG NO RO					
AU 8546346	A	19860124	(198616)		
EP 185759	A	19860702	(198627)	EN	
R: BB BE BG BR CF CG CH CM DE DK FI FR GB HU IT JP KP KR LK LU MC MG ML MR MW NL NO RO SD SE SN TD TG					
JP 61502943	W	19861218	(198705)		
US 4663289	A	19870505	(198720)		
CA 1264442	A	19900116	(199007)		
AU 9047716	A	19900913	(199044)		
EP 185759	B1	19921119	(199247)	EN	117
R: AT BE CH DE FR GB IT LI LU NL SE					
DE 3586844	G	19921224	(199301)		
AU 9477466	A	19950105	(199508)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 8600227	A	WO 1984-US1202	19840624

EP 185759	A	EP 1985-903545	19850624
JP 61502943	W	JP 1985-503244	19850624
US 4663289	A	US 1985-747792	19850624
EP 185759	B1	EP 1985-903545	19850624
		WO 1985-US1202	19850624
DE 3586844	G	DE 1985-3586844	19850624
		EP 1985-903545	19850624
		WO 1985-US1202	19850624
AU 9477466	A	AU 1994-77466	19941025
	Div ex	AU 1990-47716	

FILING DETAILS:

PATENT NO	KIND		PATENT NO
EP 185759	B1	Based on	WO 8600227
DE 3586844	G	Based on	EP 185759
		Based on	WO 8600227

PRIORITY APPLN. INFO: US 1985-748232 19850624; US 1984-623510 19840622; US 1985-747792 19850624

AB WO 8600227 A UPAB: 20030703

Physiologically compatible aq. salt soln. for admin. to mammals to maintain a normal plasma milliequiv. ratio of Na ions to Cl ions in a normal range and to maintain normal plasma and **cellular** pH and **cellular** cofactor ratios comprises water contg. (a) at least 1 of (1) 0-465 millimoles/l of HCO3 ions and CO2 in the milliequiv. ratio of 0.1:-55:0.1; (2) 0-465 millimoles/l of L-lactate and pyruvate anions in the milliequiv. ratio of 20:1-1:1; and (3) 0-465 millimoles/l of D-beta-hydroxybutyrate and acetoacetate in the milliequiv. ratio of 6:1-0.5:1; (b) 1-2400 millimoles/l Na ions; (c) sufficient Cl ions to give a milliequiv ratio of Na ions to Cl ions of 1.24-1.6; (d) 0-2400 millimoles/l of osmotically active substance(s); (e) K, Ca or Mg ions at 0-90, 0-60 and 0-15 millimoles/l, respectively; (f) 0-25 millimoles/l sigma inorganic phosphate and(g) 0-2 millimoles/l sigma inorganic sulphate. The soln. is 260-5000 milliosmolar and at pH 5-9, and the changes on all cations present equals the changes on all the anions. The minimum total concn. of all the (a) (1)-(3) couples is at least 0.1 millimole/l.

USE/ADVANTAGE - The aq. salt soln. is used for normalising blood compsn. in a mammal by electrolyte and water therapy. It is administeredparenterally, by dialysis, orally, intra-anterially etc. Dwg.0/1

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2003-24190 DRUGU P B
TI Ebselen as a multi- functional regulator of intracellular redox.
AU Satoh T; Sagara Y
CS Univ.Iwate; Univ.California
LO Morioka, Jap.; La Jolla, Cal., USA
SO macol.Sci. (91, Suppl. 1, 216P, 2003)
CODEN: ; J.Ph ISSN: 1347-8613
AV Dept. Welfare Eng., Fac. Eng., Iwate Univ., Morioka 019-8551, Japan.
LA English
DT Journal
FA AB; LA; CT
FS Literature
AN 2003-24190 DRUGU P B
AB Ebselen, a seleno-antioxidative compound, is reported to protect CNS neurons against ischemic neuronal death in-vivo. Here, the molecular basis of its neuroprotection was investigated. Ebselen protected HT22 cells, a neuroblastoma cells derived from mouse hippocampal neurons, against several types of oxidative stress at 1-5 uM. Ebselen increased basal levels of both intracellular glutathione and reactive oxygen species as well as inhibiting the decreases associated with oxidative stress. Finally, ebselen induced the expression of heme oxygenase-1 protein, which is considered to give CNS neurons a long-term resistance to oxidative stress. Thus, ebselen is a multi-functional regulator of intracellular redox in CNS neurons. (conference abstract: 76th Annual Meeting of the Japanese Pharmacological Society, Fukuoka, Japan, March 24-26, 2003). (No EX).
ABEX (E54/RSV)
CT . . . GLUTATHIONE *FT; CONC. *FT; SULFHYDRYL-REACTIVITY *FT; INTRACELL. *FT; OX. *FT; STRESS *FT; TISSUE-CULTURE *FT; BRAIN *FT; ANTIINFLAMMATORIES *FT; ANTIOXIDANTS *FT; **LEUKOTRIENE-ANTAGONISTS** *FT; PH *FT
RN [01] **60940-34-3**